Specification for Quotation for Audio Visual Contractors

Cover Pages

Specification Timeframes

Action	Date
Specification issued to contractors from Massey University by email	
Response from contractors due from contractors by close of business on	
Notification as to whether contract awarded from Massey University by close of business on	

Provisioning Timeframes

Room	Estimated Days of Work	Dates rooms booked for contractor to complete the AV provisioning works	Rooms to be Fully Completed and Released for Testing By

Room Dimensions

Room	Height	Width	Length	Notes

List of Appendices in this specification

Appendix	Included or Note
Appendix 1: Current State Equipment List	Yes / No
Appendix 2: Future State Business and Functional Requirements	Yes / No

List of Attachments to this specification

Attachment	Included or Note
Quote Template (this Excel template must be used by the contractor)	Yes / No
Massey University ITS Interactive Technologies Design Guidelines (for Audio Visual, Video Conferencing and Multimedia provisioning)	Yes / No
Floor Plans	Yes / No
Images and photos	Yes / On request
Schematic diagrams	Yes / No
Acceptance Certificate	Yes / No

Contacts

Please contact the Technical Lead in the first instance; or the next on the list if they are not available.

Name	Role	Mobile	Email	Office
	Technical Lead			
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Document History

Date Updated	Updated By	Notes
24 July 2013	Tricia Drew	Created document from existing *Massey University Brief to External AV Contractors.doc.* Iestyn Burke in Procurement team has reviewed and made comment on this document.
2 August 2013	Tricia Drew	Minor amendments to Technical and Business Requirements
7 November 2013	Tricia Drew	Addition of the reference to *Audio Visual and Video Conferencing Guidelines.pdf*, and removal of GTRAG guidelines.
8 January 2014	Tricia Drew	Additional items required in quotes, and invoices.
28 March 2014	Sue Tait	Changes to formatting and naming of documents of the listed in the cover pages for Vet4.02 only. These changes to the specification are aimed at clarifying the process and following review by Massey and the contractors will be applied to the template for future specifications.
7 April 2014	Sue Tait	Room Dimensions table added to cover pages. Clarifications to Overview in body of specification highlighted in red
9 April 2014	Selwyn Cathcart	ADD three additional requirements under "Generic Technical Requirements".
30 April 2014	Sue Tait	Added an additional selection criteria

Preface to the Specification

This specification comprises the following parts:

1. Specification
   - 1.1 Cover Page
     - An overview of the timeframes and documentation particular to this specification
   - 1.2 Body of the Specification
     - Guidelines which apply to all specifications where the equipment and / or service already exists in each room and / or is to be provisioned in each room
     - Changes since last release are noted in the document history and / or highlighted in red
     - The specification and attachments for the criteria which are agreed to by external contractors when submitting a quote or proposal for the supply of audio visual services and equipment at Massey University
   - 1.3 Appendices
     - Documentation particular to this specification such as equipment lists
2. Attachments
   - Additional guidelines which apply to all specifications
   - Documentation attached for this particular specification such as floor plans
   - The list of attachments is included in the cover pages

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Overview of the Quotation Selection Process

Three (3) audio visual contractors have been requested to supply a quote based of the following requirements brief.

Quotes will be evaluated by a Massey University Information Technology Services panel comprising members of the national Interactive Technologies team and members of the Service Delivery Support teams for the affected campus(es). The quote selection criteria used by the panel is:

- Cost effective
- Fit for purpose
- Available and able to fully complete all provisioning works within the specific dates or within the required timeframes if a specific date is not documented
- Aligned with the Massey University ITS Interactive Technologies Design Guidelines (for Audio Visual, Video Conferencing and Multimedia provisioning)
- Capability to provide support and maintenance
- All requested information has been supplied as specified in the Checklist
- If all responses are weighted equally with respect to the above criteria, then a supplier will be selected by Massey cognisant of the need to keep all our suppliers familiar with the current Massey environment and our strategic future direction

All quotes will be of a fixed price nature and valid for a minimum period of 90 days.

Existing Implementation

For a list of the existing equipment and services in the room(s) which are relevant to this specification please refer to **Appendix 1**

Business and Functional Requirements for this Provisioning

For the requirements for each room please refer to **Appendix 2**.

On completion each room must meet or exceed the attached Massey University ITS Interactive Technologies Design Guidelines (for Audio Visual, Video Conferencing and Multimedia provisioning).

If you have not previously inspected the room(s) within the last year an onsite visit is highly recommended before submitting a quote. Please contact the Massey University ITS Technologies Services Technical Lead listed in the cover pages to arrange site visits or with any other requests for information.

Documentation and Help

These guidelines must be applied to all specifications where the equipment and / or service already exists in each room and / or is to be provisioned in each room.

The solution must be provided with adequate documentation and code files to assist with its use and access. All documentation, diagrams and user guides supplied to Massey University become Massey University property. The solution on deliver should include:

(a) Warranty and duration of warranty for each supplied piece of equipment.
(b) Source code for Audio Visual controller programming, as a compiled zip file. A copy of all revised Crestron code to be supplied to the University no later than at time of invoice.
(c) Invoices for hardware only must only be for hardware that has been delivered to Massey University site prior to the invoice date and has been sighted by Massey Interactive Technologies team member or their approved Massey representative.
(d) Quotes must have single line entries for each item supplied. This will allow items to be delivered and paid for independently of each other. If bundled items need to be supplied as one line entry, i.e. Radio transmitter and receiver, then they must be delivered together or retained by the contractor until they can be supplied as a bundle.
(e) The itemised invoice will need to be supplied with serial and model numbers of equipment. The invoice line items must be the same individual line items as the works order received from Massey University.
(f) An as built schematic diagram in standard editable electronic format (currently VISIO, EXCEL etc.) of all work done including the existing AV infrastructure in addition to all user manuals stowed in a hardcover 2 ring A4 ring binder folder together with any other product setup software.
(g) A product list of all equipment supplied in standard format (currently MS EXCEL) including model to be submitted at the end of the commissioning phase.
(h) User manual/s for each room is to be part of the deliverables.

Technical Requirements

These guidelines must be applied to all specifications where the equipment and / or service already exists in each room and / or is to be provisioned in each room.

All equipment must meet or exceed the following requirements where appropriate. Please consider the following before submitting a quote:

New Zealand Governing and Massey University Requirements

- AS/NZS 60065:2003, including Amendment 1. This international safety standard specifically covers AV Electronic equipment.
- All equipment to be “C-Tick” approved.
- Equipment is to carry the following approvals: RoHS compliance, AES grounding practices and CE certified.
- NZ Electrical Regulations Electricity Act 1992 and its amendments and Codes of Practice.
- Any requirements of Local Electrical Supply Authority.
- New Zealand Radio Interference - Regulations and Interference Notices.
- Health and Safety in Employment legislation.
- Any assisted hearing devices provisioned will comply with the current version of the Australian Standard AS60118.4 – 2007. An independent performance report (as outlined in the standard) must be included with other manuals supplied by the contractor.

- ALL mains powered equipment supplied to ITS must be electrically tagged as per requirements outlined in the current version of the New Zealand Standards AS/NZS 3760.
- All staff working on an installation containing mains powered equipment must carry a current practicing certificate issued by the Electrical Registration Board.
- AV9000 – Defining Quality in Engineered Audio Visual Systems.
- NZ Department of Labour work Best Practices and Guidelines.
- The contractor may be requested to produce a copy of the "Selected contractor Declaration of Conformity Form" SDoC) as outlined in regulation 83 of the Electricity (Safety) Regulations and its amendments.
- That you agree to follow and abide by Massey University Health and Safety requests and policies.
- The attached Massey University ITS Interactive Technologies Design Guidelines (for Audio Visual, Video Conferencing and Multimedia provisioning).
- ALL Crestron programmes/files to be regularly backed up, even during a project, on the University's shared drive made available for that purpose, as a minimum, after each AV project. This includes xPanel files. Any code used or developed by the contractor/programmer must not infringe any existing copyright. Any software supplied must not contain any "warnings" when complied and may be used by the University to use in perpetuity with no restrictions. All code to be supplied in a compiled and a non-compiled in an electronic format, with no password, or fixed to a specific MAC address and/or other form of security and/or any copying/distribution restrictions are applied.
- Please ensure the correct Massey University opening panel logo is the correct version and any audio visual HELP telephone numbers used on the touch panel are correct, contact the Massey University Project Manager for details.
- All supplied hardware to have their warranties registered in the Universities name.
- Attend any H&S introductory requirements that Massey University may require. It is the contractor's responsibility to maintain all regulatory requirements.
- That you will comply with Massey University's car parking regulations.
- Sign the "contractor's sign-in/out book" located at each Campus Facilities Management office (FM) each time you are on Campus carrying out work.
- Contractors are required to keep the work area safe, clean and tidy and dispose of all excess cardboard boxes and packaging material.
- All removed audio visual hardware to be delivered to Massey University ITS. Any accessories for the new equipment that were not required are also required to be supplied to Massey University ITS staff.

Generic Technical Requirements

- When available, the use of embedded audio in both HDMI & Display Port++ and Display Port formats is encouraged.
- No active or passive equipment is to be installed in the ceiling void or any other enclosed space; unless by specific agreement.
- All amplifier sound level controls must be clearly labelled and marked with a white "dot" indicating the level set during the commissioning phase.
- All existing cabling is to be replaced with cables. All cables must be clearly labelled at both ends with a printed electronic labelling device i.e. not hand written.

- All category cables to be shielded, yellow outer sheath and be of stranded cable and not be used for distribution of HD material.
- HDMI cables shall meet the HDMI "High Speed" cable specification – max 15m length, cables runs longer than 15m to use a fibre based solution.
- Cables – preferred cable manufacturer is Belden:

    - All Cat 5e/6a cabling used for interconnecting audio visual equipment is to have a Yellow outer sheath and use stranded wire.
    - Speaker 8 Ohm & 100/70v – Belden 8477
    - Speaker 70/100v – Belden 8471
    - RS-232 – Belden 9503 or 9536

- Where possible use HDMI cable strain relief fittings or similar methodology to remove any strain on the plug and socket. The liberal use of cable bars is highly recommended to reduce cable/plug strain and to ensure HDMI plugs do not fall out of their respective sockets.
- No plastic power distribution boxes – prefer the use of the rack mounted "Jackson" brand, additionally no power converters (i.e. no US parallel pins to NZ) are to be used.
- All systems must be HDCP compliant for any HD "protected" content source/s and also display non-protected sources.
- HDMI equipment that meets the HDMI version 1.3 standard, or greater.
- All equipment, where possible is to be mountable in a standard 19" equipment rack.
- All rack mounted hardware is spaced by a 1 Rack Unit vented panel.
- Minimise the number of conversions between of DVI, Display Port++, Display Port & HDMI electronic data streams and hardware. The use of adaptors i.e. HDMI/DVI etc. is not recommended – preferred option is to use cables with the appropriate format plug/socket.
- You may be requested to provide a demonstration setup of your offered solution at no charge to the University.
- All radio microphones are to use the frequency allocation 614 MHz to 686 MHz, NZRFS licence number 222921.
- Motorised projection screens UP/DOWN/STOP functionality is to be hard switched via latching relays with surge or spike protection diodes fitted internally.
- Infra-Red is not to be used for any control of audio visual hardware except players, where no other option is available to control the device.
- Power outlets to projectors and motorised screens are to be readily accessible without removing any ceiling tiles.
- All fixed electrical work carried out must be compliant and certified by a Code of Compliance document, a copy to be provided to Massey University.
- The person(s) carrying out the work must have completed the Massey University Campus contractor induction process before commencing work.
- Switching times between HDMI compliant or non-compliant sources must be minimal; Massey University's expectation would be under 4.0sec to obtain a stable displayed image when viewing HDMI compliant media.
- ALL RS-232 devices must be controlled and programmed using ***bi-directional*** RS-232 functionality. Ensure sufficient RS-232 feeds are provided in your solution.
- All XGA cabling used within the AV project must use 15 core cable. The vendor must identify the location and purpose all existing XGA cabling that does not connect all 15 connector pins end-to-end, and include a cost to replace it with compliant cable in their quotation.

- Where a ZOOM lens is fitted, a projector must be mounted such that a full image is displayed on the screen while the lens is set within the middle 80% of its zoom range (i.e. the lens must not be set to operate at the extremes of its zoom range).
- Cables to projectors must not include extensions. For example, if a projector is required to be "moved" from its current position and there is insufficient cable length, then new cable/s must be installed.

Performance Standards

Please refer to the attached Massey University ITS Interactive Technologies Design Guidelines (for Audio Visual, Video Conferencing and Multimedia provisioning) for the user interface details. The core requirements of audio visual functionality in Massey University's supported teaching and learning space is that they are reliable, robust, user friendly.

The interface between the room environment and the user to be consistent over all Massey University campuses as indicated in the Massey University ITS Interactive Technologies Design Guidelines (for Audio Visual, Video Conferencing and Multimedia provisioning). Massey University defines a user as any person who has authority from Massey University to use the audio visual equipment.

Operational and Quality Assurance Requirements

- Workmanship is to be of a high standard and that meets New Zealand and University requirements as detailed in New Zealand Governing and Massey University Requirements section above.
- Work is to be fully completed and within budget in a timely manner as agreed.
- It is expected that access to work areas may be required outside the normal University teaching timetable hours of 8am to 6pm.
- Any Crestron programming is only to be carried out by Crestron Certified programmers. Code is to be robust and error free. All test and production releases of the code are to be held by Massey University. A full copy of the code will be supplied to Massey University in both an electronic compiled and in a non-compiled form, it is expected that regular updating to the University Crestron back-up folder of the code is effected as the project progresses.
- The contractor is expected to have a range of suitable test equipment available for commissioning and to confirm to Massey University that the expected AV system performance requirements have been achieved etc. – i.e. SLP meter, DP, HDMI and VGA test pattern generator/s as a minimum, test instruments to assist setting up EDID, fault finding of DP++, Display Port, HDMI & HDCP issues in a timely manner.
- Upon completion the solution provided will need to be tested with an appointed Massey University staff member before the contractor leaves the Massey University site. The specific acceptance criteria will be documented once a quote has been accepted by Massey University. The contractor and the appointed Massey University staff member(s) will need to sign the Acceptance Certificate if the solution passes the criteria or document outstanding issues that need to be resolved. Once resolved the Acceptance Certificate will need to be signed by both parties.

Assumptions

All 230vAC powered (except projection/displays) audio visual equipment will be connected via a Massey University supplied and fitted APC rack mounted uninterrupted power supply, UPS. Registration of “network enabled” equipment will be undertaken by Massey University on advice of the device requirements i.e. fixed/static or DHCP host configuration plus the MAC, model & serial numbers from the AV Contractor.

Quote Template Sample

The editable, Excel, Quote Template supplied as an attachment must be used by the contractor.

The agreed Description and Quantities must be entered exactly on all documentation including delivery notes and invoices to ensure receipting and payment for goods and services can be processed as expediently as possible by Massey University staff that is not familiar with technical equipment.

Important Notes:

1. The text in the **Description column** of the quote must be **limited to 40 characters**
2. The text in the Description column will be reviewed by Massey in conjunction with the contractor upon acceptance of the quote.
3. The agreed Description text and quantities will then be entered in the Massey Finance System for tracking all the way through from the works order, through receipting to invoicing.
4. Please also refer to the sample quote below before completing your quote using the attached template

<Room Name>				
Type Item	**Description (including make and model, limited to 40 characters and must match invoice exactly)**	**Qty**	**Unit Cost**	**Total**
Equipment				
<e.g.Controller>	*<e.g. Crestron MP2E Controller>*			
	please provide serial numbers plus makes/models			
	hardware only, all labour to be itemised in the Labour section below			
	single line entry for each item			
Sundry Equipment				
	<e.g. HDMI cable>			
Labour	*labour needs to be separate from hardware*			
Total				**$0.00**
Notes:	*This lines are available for any notes you would like to make regarding this installation*			

Checklist of Information to be Included in Response from Contractor

The following information is requested and should be forwarded to the Massey University contact listed below with your quote:

Product Offering

- ☐ Please provide a general description of the product to be offered. Where the preferred solutions deviates from any of the above listed Business, Technical or Operational requirements these will need to be stated in writing.
- ☐ Any relevant accreditation of new staff who have not previously worked on a Massey University site E.g. Current practicing certificate issued by the Electrical Registration Board.
- ☐ Provide URL for any relevant web sites if available, i.e. links to hardware or software websites

Implementation for Equipment, Software and Services

- ☐ Installation alternatives, if more than one is available.
- ☐ A schematic diagram in standard editable electronic format (currently VISIO, EXCEL etc.) of all proposed work and equipment including the existing audio visual infrastructure.
- ☐ A product list of all equipment supplied in standard format (currently MS EXCEL) including model and serial numbers to be submitted at the end of the commissioning phase
- ☐ Warranty period for each piece of equipment, include response and fix times for each piece of equipment.
- ☐ Include your onsite presence minimum and maximum times, from the time a service request was logged by Massey University.
- ☐ Fixed price quote of the preferred implementation solution and valid for 90 days. The price should include installation costs. All costs to be quoted excluding GST.
- ☐ Please confirm that the calendar days to complete installation and testing, inclusive of acceptance testing listed for each room listed below are sufficient to complete the work listed.
- ☐ Complete the attached quote table in excel. Please separately list all cables quoted for each room.

For rooms that have a fixed implementation date please note that, room bookings have been confirmed for commissioning of equipment with the Massey University Booking System there is limited scope to change these dates i.e. these are fixed commission dates.

Where there are multiple rooms please treat each room as an individual quote. Rooms that have specified installation dates need to be commissioned on these dates, *if you can't supply equipment before or labour on these dates then please indicate this in your quote.*

Work in the rooms must be fully completed within the dates booked as specified in the cover pages.

Please supply the contact details of the best person to contact regarding your quote. The successful contractor will be notified by the dates specified in the cover pages. An official University works order will be raised as soon as possible after this time.

Massey is not obligated to purchase any goods and services as a result of this request.

Appendix 1: Current State Equipment List

Massey University would like to refresh the <… complete as appropriate>

Type	Qty	Notes
Projectors		
TAB tensioned 4:3 motorised screen		
Fixed 4:3 screen		
Touch panel		
Radio microphone - lapel type		
CoolScan 35mm scanner device		
Sound Reinforcement system TOA 912 MK2 with 4” ceiling speakers		
Visual Presenter		
Programme Sound system Mackie M800 with LR speakers		
VCR/DVD Combo player Panasonic		
Kramer VS-611 Audio switcher		
Kramer VS-41HDCL		
Kramer VP-725 Scalar		
Crestron VEQ4 Vol Card		
Toa WT4800 Radio microphone receiver		
Crestron ST-COM RS-232 interface		
Crestron relay cards – for light switching/control		
Crestron Dimmer card – for room light dimming		
Custom Membrane board		
Various AV support hardware components		
Door ON/OFF Illuminated switches		
Kramer DisplayPort to HDMI adaptor – model VM-2DH.		

Appendix 2: Future State Business and Functional Requirements

This room is currently used … <complete as appropriate>

Turitea Campus Teaching & Learning Space Vet 4.02 Requirements Brief				
Type	**Make**	**Model**	**Qty**	**Notes**
Equipment Rack				
Touch Panel				
AUX Panel				
Radio Microphone Tx				
Radio Microphone Rx				
Radio Microphone Capsule				
MiPro Antenna mounting Bks				
MiPro Antenna				
Projector				
Display				
LCD Panel Mount				
Screen				
Blu-ray				
Programme Sound				
Sound Reinforcement				
Amp				
Vol Card				
Deaf Loop				
Crestron 70w Power Supply				
Crestron Power Supply mount				
Projector Mount				
Light Control				

Visual Presenter				
Rack LED Light				
POD				
Lectern Microphone				
APC UPS or Power conditioner				
Cable Bars				
Fibre Rx & Tx devices				
Controller				
Scalar				
Matrix switcher				
DisplayPort to HDMI Adaptor				
Cabling				
Labour				
Programming				
Commissioning work				
Electrical testing				
User training				
Documentation				
Lectern				

NOTES:	
1.	Our expectation is after final commissioning there will be no error messages stored in the Audio Visual processor.
2.	Connect existing USB sockets on AUX panel to the resident PC.
3.	All bolts to mount AV hardware onto racks are to be **M6** size with a pozi drive head.
4.	Audio – desire to have each microphone level separately audio level controlled and muted from the touch panel.
5.	ADD to the existing laptop menu page functionality for selecting between embedded and non-embedded sound sources.
6.	Retain current lighting functionality.
7.	Remove all references to the “Projector Control” on several menu pages and add to the diagnostics page in the expert menu.
8.	Additional to the general AV inputs there is a Nikon “CoolScope” 35mm slide/specimen slide which has a XGA output and a separate preview screen. Please

	mount the XGA 1 x 2 XGA splitter inside the rack with a rack mount, RK1.
9.	Tidy-up the electrical wiring by using Jackson power rails and accepted good practice techniques in both the lectern area and the electronics cabinet.
10	This space currently utilises a “mix & match” user option but to include de-embedded audio option on menus. Mix and Match functionality, is the ability to play any audio source with any display source. Vet4.02 has this level of user functionality provisioned.
11	Serial number of data projector to be added to a label so that is visible from the floor by service staff.
12	De-embedded audio to be an option available to the “user”- both direct mode and expert modes of operation.
13	RoomView file to be supplied to reflect the hardware and software changes. RoomView to display Projector lamp hours and temperatures both in digital and text formats, MiPro to display Tx frequency, battery and ON/OFF status on both RoomView Express and xPanel. The electronics cabinet should be temperature monitored and displayed on RoomView.
14	xPanel file to be supplied to reflect the hardware and software changes. xPanel to consist of various pages as follows: Projector and/or LCD/LED display functionality including hour and temperature data MiPro if provisioned, Tx frequency, signal strength, squelch ON/OFF status etc. The battery health data to be saved if possible in a non-volatile memory. Scalar, input and output parameters including HDCP status, resolution and colour depth HD-MD8x2 Matrix switcher Input & output parameters including HDCP status resolution colour depth LCD running time (usage) – to be saved if possible in a non-volatile memory.
15	All hardware etc. remove as part of this AV refresh work must be returned to the ITS Work Shop before commissioning work is commenced.
16	Do propose alternative solutions, and to highlight other work that is not covered in the proposed project scope to enhance the outcome for the University, or its users.
17	Please advise the Massey University contact if you have any concerns of your work impacting upon the structural integrity on Massey University buildings. I.e. will drilling in a projector mount affect the building?
18	Audio Coverage Uniformity from the ceiling mounted speakers is required to not excepted exceed 2dB as measured by a SPL meter in areas where Students will be seated.
19	Audio levels between sources should be within 2dB when selecting.